

REMARKS

Claims 1-12 were presented, examined, and stand rejected. In response to the Office Action, Claims 1-6 and 8 are amended, Claims 7 and 9-12 are cancelled, and Claim 13 is added. Claims 1-6, 8 and 13 remain in the application.

I. Objections of the Claims

Claims 4-9 and 11 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Applicants have cancelled Claims 7, 9 and 11. Claims 4-6 and 8 have been amended to depend from Claim 1. Applicants respectfully request that the objections to Claims 4-9 and 11 be traversed.

II. Rejections of the Claims under 35 U.S.C. § 102

Claims 9 and 11 stand rejected under 35 U.S.C. 102(be) as being anticipated by U.S. Patent No. 5,753,014 issued to Van Rijn ("Van Rijn"). Claims 9 and 11 stand rejected under 35 U.S.C. 102(3) as being anticipated by U.S. Patent No. 6,478,968 issued to Perrona et al. ("Perrona").

Applicants have cancelled Claims 9 and 11.

III. Rejections of the Claims under 35 U.S.C. § 103

A. Claims 1-7 stand rejected under 35 U.S.C. 102(be) as being unpatentable over Van Rijn in view of U.S. Patent No. 5,728,261 issued to Wolfe et al. ("Wolfe").

Claim 1 is amended to incorporate all of the limitations of Claim 7 and to more precisely point out that the starting material is a continuous sheet. Support for this feature can be found, for example, on page 4, lines 31-33 and page 6, lines 5-6 of the specification. Claim 1 is further amended to recite a filter having calibrated through pores. Support for this feature can be found, for example, on page 1, first paragraph of the specification. Claim 7 is cancelled.

The recited method comprises the following features:

- the starting material is a continuous sheet,
- the thickness of the sheet is 5 μ m to a few tens of micrometers,
- all the etching operations are performed in succession during sequential travel of the sheet,

- the combination of the use of a mask with an etching selectivity of at least 5 with the use of an isotropic etching, producing through pores with an aspect ratio greater than 5.

Van Rijn and Wolfe do not disclose any of the above features in amended Claim 1.

Van Rijn does not disclose the use of a continuous sheet as the starting material, as recited in amended Claim 1. Applicants disagree with the Examiner regarding the assertion that col. 7, lines 15 to 20 of Van Rijn anticipates original Claim 7. Figures 9-15b of Van Rijn show several stages of a process realized on a piece of membrane deposited by CVD or epitaxial growth on a support. The process of Van Rijn does not use a continuous sheet as the starting material. By contrast, the claimed method applies to a continuous sheet of material, i.e., a material with a high mechanical strength even on big dimensions and which can be handled, for example, unwound from a roll. A description of this starting material can be found in Applicants' specification on page 6, lines 5 to 14.

Further, Van Rijn discloses in column 2, line 10 that the layers used have a thickness between 20 nm and 5 μm . By contrast, the recited method aims to handle thick sheets, that is, from 5 μm to a few tens of micrometers, as recited in amended Claim 1. The thickness of such a sheets is high, e.g., at least 5 μm , and is routinely of 10 μm (*see*, page 8, line 12) or of 12 μm for, e.g., polymer films.

Additionally, the process described in Van Rijn is very different from the claimed invention. The process of Van Rijn only concerns the etching of a layer obligatorily deposited on a support, for example, by CVD, spin coating and so on. Consequently, the thickness of the deposited layer is thin and does not necessarily have a high etching anisotropy. In the last paragraph of col. 5, Van Rijn discloses, in a general manner, the use of isotropic or anisotropic etching, and provides values of aspect ratios (col. 5, line 66). Nevertheless, Van Rijn mentions in the abstract that the process aims to create perforations in a membrane with a thickness smaller than the diameter of said perforations. Since the thickness of the deposited layer is small, the examples given in col. 7, line 67 to col. 8, line 2 or in col. 8, lines 9 to 22 is equivalent to small aspect ratios (i.e., 2/40 or 5/3). Thus, when reading Van Rijn, a person of ordinary skill in the art would create perforations that are broad rather than deep. Van Rijn does not disclose an aspect ratio greater than 5, where aspect ratio is defined as the ratio of the depth of the pores to their diameter.

Moreover, in Van Rijn, the area of the filter units are small (0.2 mm x 0.2 mm in col. 8, line 19, or 5 μm x 5 μm in col. 8, line 47). The recited method can produce big filters, starting, for example, from a sheet having a width of one meter (*see*, page 6, line 7 of the specification).

Finally, Van Rijn provides absolutely no indication of etching selectivity of the mask. Van Rijn does not disclose a mask presenting etching selectivity S of at least 5, as recited in amended Claim 1.

Wolfe is relied on for disclosing an RIE etch method. However, Wolfe does not supply the missing elements in Van Rijn with respect to the elements of Claim 1 mentioned above.

Further, amended Claim 1 is non-obvious over Van Rijn in view of Wolfe. To establish a *prima facie* case of obviousness, the Examiner must set forth “some articulated reasoning with some rational underpinning to support the conclusion of obviousness.” *See, KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). Applicants submit that the Examiner has not set forth the required reasoning to support the conclusion of obviousness.

First of all, the teaching of Van Rijn and Wolfe cannot be combined since their technical fields are different. Wolfe is non-analogous art. Wolfe does not concern the technical field of filter fabrication. Wolfe only discloses an apparatus and a method for reactive ion etching a pattern in a silicon layer (silicon stencil mask) coated with a silicon dioxide mask.

Secondly, even if Van Rijn and Wolfe are combined, the combination would not produce the recited invention. A person of ordinary skill in the art, in view of the two references, would conclude that the etch selectivity of stencil silicon mask / SiO₂ mask must be greater than 25, and it is possible to etch a layer across a mask only for a very thin silicon membrane, i.e., with a thickness between about 0.75 μm and 2.5 μm (*see*, col. 9, line 23 of Wolfe). There is no indication in the references that the layers can have a thickness greater than 5 μm . Neither Van Rijn nor Wolfe discloses that an etching selectivity higher than 5 is sufficient to etch a thick layer greater than 5 μm .

Finally, Wolfe does not disclose applying an etching process to a continuous sheet of thick material. There is no indication in Wolfe that a continuous sheet of thick material is used in an etching process.

Thus, for at least the foregoing reasons, Van Rijn in view Wolfe does not teach or suggest each of the elements of independent Claim 1, as well as dependent Claims 2-6. Accordingly, withdrawal of the rejection of Claims 1-7 is requested.

New Claim 13 is added to recite the diameter of the through pores created inside the filter, which is not disclosed by Van Rijn in view Wolfe. New Claim 13 depends from Claim 1. Thus, for at least the reasons mentioned above with respect to Claim 1, allowance of Claim 13 is requested.

B. Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn in view of Wolfe and further in view of U.S. Patent No. 6,296,961 issued to Moy et al. ("Moy").

Claim 8 depends from Claim 1. Thus, for at least the foregoing reasons with respect to Claim 1, Van Rijn in view Wolfe does not teach or suggest each of the elements of Claim 8.

Moy is non-analogous art. Moy does not concern the technical field of filter fabrication. Additionally, Moy does not supply the missing elements in Van Rijn and Wolfe with respect to the features mentioned above with respect to Claim 1. Accordingly, withdrawal of the rejection of Claim 8 is requested.

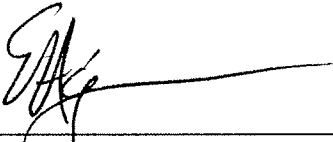
CONCLUSION

In view of the foregoing, it is believed that all claims are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,

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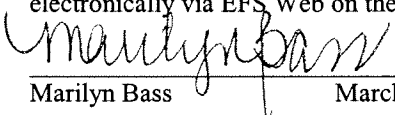
Dated: March 10, 2009



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Marilyn Bass March 10, 2009